

CONTENTS OF VOLUME 97

Vol. 97A, No. 1

**E. E. Southwick, D. W. Roubik
and J. M. Williams**

**D. Siebers, K. Böttcher, G. Petrusch
and A. Hamann**

Mark S. Peterson

G. T. H. Ellison and J. D. Skinner

**Kathy L. Knudsen and
Delbert L. Kilgore Jr**

**J. Vanden Broeck, J. Cardoen, J. Neyts,
K. Swinnen and A. De Loof**

**Gro-Ingunn Hemre, Øyvind Lie,
Georg Lambertsen and Anne Sundby**

**K. K. Kreikemeier, D. L. Harmon
and J. L. Nelssen**

**Lars Hagerman, Tina Søndergaard,
Klaus Weile, Deborah Hosie
and Roger F. Uglow**

**M. W. Smith, M. A. Mitchell
and M. A. Peacock**

**U. Altrup, A. Lehmenkühler, M. Madeja
and E.-J. Speckmann**

Henning F. Bjerregaard and Robert Nielsen

**Shiro Shirakura, Taketoshi Furugohri
and Yukiko Tokumitsu**

James D. Robertson

1 Comparative energy balance in groups of Africanized and European honey bees: ecological implications

9 Effects of some chloride channel blockers on potential differences and ion fluxes in isolated perfused gills of shore crabs *Carcinus maenas*

17 Hypoxia-induced physiological changes in two mangrove swamp fishes: sheepshead minnow, *Cyprinodon variegatus* Lacepede and sailfin molly, *Poecilia latipinna* (Lesueur)

23 Noradrenaline thermogenesis in conscious and anaesthetised pouched mice (*Saccostomus campestris*)

27 Temperature regulation and basal metabolic rate in the spotted skunk, *Spilogale putorius*

35 Detection of substances recognized by antisera directed against vertebrate somatotropin, prolactin and placental lactogen, within the brain of the insect *Locusta migratoria*: a comparison of immunocytochemical localization patterns

41 Dietary carbohydrate utilization in cod (*Gadus morhua*). Hormonal response of insulin, glucagon and glucagon-like-peptide to diet and starvation

45 Influence of hydrocortisone acetate on pancreas and mucosal weight, amylase and disaccharidase activities in 14-day-old pigs

51 Aspects of blood physiology and ammonia excretion in *Nephrops norvegicus* under hypoxia

57 Effects of genetic selection on growth rate and intestinal structure in the domestic fowl (*Gallus domesticus*)

65 Morphology and function of the identified neuron B3 in the buccal ganglia of *Helix pomatia*

75 Role of Ca^{2+} and prostaglandin in regulation of active Na^+ transport in frog skin

81 Activation of glucose transport by activatory receptor agonists of adenylate cyclase in rat adipocytes

87 Ionic composition of the coelomic fluid of three marine worms, the priapulid *Priapulus caudatus* Lamarck, and the sipunculans *Sipunculus nudus* L. and *Golfingia vulgaris* (De Blainville)

Vol. 97A, No. 2

Mini Reviews

J. J. Videler and B. A. Nolet

91 Costs of swimming measured at optimum speed: scale effects, differences between swimming styles, taxonomic groups and submerged and surface swimming

Christian Schwabe

101 New thoughts on the evolution of hormone-receptor systems

General Papers

- Jeannette E. Doeller, David W. Kraus and James M. Colacino** 107 Simultaneous measurement of the rates of heat dissipation and oxygen consumption in marine invertebrates having and lacking hemoglobin
- Hui-Minn Lee, Edward J. Parish and Leon W. Bone** 115 Occurrence of mammalian sex steroids in the free-living nematode, *Turbatrix aceti*
- R. W. Gauldie and D. G. A. Nelson** 119 Otolith growth in fishes
- R. W. Gauldie and R. L. Radtke** 137 Microincrementation: facultative and obligatory precipitation of otolith crystal
- Marie-Françoise Coustans, Jean Guillaume, Robert Metailler, Olivier Dugornay and Jean-Luc Messager** 145 Effect of an ascorbic acid deficiency on tyrosinemia and renal granulomatous disease in turbot (*Scophthalmus maximus*) interaction with a slight polyhypovitaminosis
- Arantxa Hernandorena** 153 Comparative study of nutritional requirements in two axenically reared *Artemia* strains
- Tracey Appleton and J. L. Wilkens** 159 Habituation, sensitization and the effect of serotonin on the eyestalk withdrawal reflex of *Cancer magister*
- Beverly A. Himick and J. G. Eales** 165 Acute correlated changes in plasma T₄ and glucose in physically disturbed cannulated rainbow trout, *Oncorhynchus mykiss*
- Yibo Cui and Jiankang Liu** 169 Comparison of energy budget among six teleosts—II. Metabolic rates
- M. Zeman and Helena Illnerová** 175 Ontogeny of N-acetyltransferase activity rhythm in pineal gland of chick embryo
- Ç. Özesmi, P. Doğan, O. Bayındır and S. Aydoğan** 179 Changes in serum protein lipid and electrolyte levels in rabbits at mid-altitude
- A. M. Beal** 185 Composition of sublingual saliva of the koala (*Phascolarctos cinereus*)
- Atsushi Chiba, Masamitsu Hamaguchi, Masaaki Kosaka, Tatsuya Tokuno, Toshiharu Asai and Shiko Chichibu** 189 Energy metabolism during contraction of the first ambulatory leg of the crayfish
- P. J. Bentley** 195 Unidirectional fluxes of Na⁺, Cl⁻ and water in fingerling channel catfish, *Ictalurus punctatus*
- Etsumori Harada, Yoshiharu Hashimoto and Bunei Syuto** 201 Epidermal growth factor accelerates the intestinal cessation of macromolecular transmission in the suckling rat
- Hisashi Aratake, Li Rong Deng, Hiroshi Fujii, Yataka Kawaguchi and Katsumi Koga** 205 Chymotrypsin inhibitors in haemolymph and eggs of the silkworm, *Bombyx mori*: developmental changes in inhibitory activity
- Terry W. Snell and Melissa A. Nacionales** 211 Sex pheromone communication in *Brachionus plicatilis* (Rotifera)
- Vukosava Davidović, Sanja Glišić and Nasta Dedović** 217 Implications of interscapular brown adipose tissue removal and sucrose overfeeding on the sympatho-adrenal activity and metabolic responses
- S. J. Olds, Leon W. Bone and John C. Frandsen** 221 Mineral content of the free-living nematode *Turbatrix aceti* and ruminant parasite *Trichostrongylus colubriformis*
- Arinobu Ebara, Hiroyuki Uesaka and Hiroshi Yamagishi** 223 Pacemaker activity in the heart of a beetle, *Allomyrina dichotomus*

- Michel Genoud, Frank J. Bonaccorso
and Alexis Arends**
- Maria Lúcia Pedrosa, Marcelo E. Silva,
Márcio E. Silva, M. E. C. Silva,
J. R. Nicoli and E. C. Vieira**
- J. Marder, U. Eylath, E. Moskovitz
and R. Sharir**
- R. C. Harris, D. J. Marlin, M. Dunnnett,
D. H. Snow and E. Hultman**
- G. A. Bubenik, R. D. Brown and
D. Schams**
- Charles R. Blem and Karen L. Blem**
- A. Ouahbi, C. Duchêne and R. Gilles**
- A. Ouahbi and R. Gilles**
- Torarinn Sveinsson and Toshiaki J. Hara**
- Torarinn Sveinsson and Toshiaki J. Hara**
- 229 Rate of metabolism and temperature regulation in two small tropical insectivorous bats (*Peropteryx macrotis* and *Natalus tumidirostris*)**
- 235 The effect of iron deficiency and iron overload on the evolution of Chagas disease produced by three strains of *Trypanosoma cruzi* in CFW mice**
- 245 The effect of heat exposure on blood chemistry of the hyperthermic rabbit**
- 249 Muscle buffering capacity and dipeptide content in the thoroughbred horse, greyhound dog and man**
- 253 The effect of latitude on the seasonal pattern of reproductive hormones in the male white-tailed deer**
- 259 Metabolic acclimation in three species of sympatric, semi-aquatic snakes**
- 265 Comparative studies of volume restoration following cold-stress induced swelling in renal tissues—I. Effects of ouabain, K⁺ free medium, colchicine and cytochalasin B on rat and rabbit kidney cortex slices**
- 275 Comparative studies of volume restoration following cold-stress induced swelling in renal tissues—II. Effects of furosemide, amiloride and K⁺ permeability in rabbit cortex slices**
- 279 Analysis of olfactory responses to amino acids in arctic char (*Salvelinus alpinus*) using a linear multiple-receptor model**
- 289 Multiple olfactory receptors for amino acids in arctic char (*Salvelinus alpinus*) evidenced by cross-adaptation experiments**
- 295 Book Reviews**

Vol. 97A, No. 3

Review

C. Lucu

Mini Reviews

**Barney A. Schlinger and
Gloria V. Callard**

D. B. Shennan

General Papers

Koji Ashizawa and Makoto Hori

J. L. S. Cobb and Gordon Hendler

**G. B. Proctor, B. Asking and
J. R. Garrett**

**Masataka Yoshino, Kanefusa Kato,
Keiko Murakami, Yoshinao Katsumata,
Masafumi Tanaka and Shigeo Mori**

297 Ionic regulatory mechanisms in crustacean gill epithelia

307 Aggressive behavior in birds: an experimental model for studies of brain-steroid interactions

317 Mechanisms of mammary gland ion transport

325 Activation of dynein adenosine triphosphatase and flagellar motility of demembranated spermatozoa by monovalent salts at 40°C in the domestic fowl, *Gallus domesticus*

329 Neurophysiological characterization of the photoreceptor system in a brittlestar, *Ophiocoma wendtii* (Echinodermata: Ophiuroidea)

335 Effects of parasympathectomy on protein composition of sympathetically evoked parotid saliva in rats

341 Shift of anaerobic to aerobic metabolism in the rats acclimatized to hypoxia

R. Hissa, H. Rintamäki, P. Virtanen, H. Lindén and V. Vihko	345 Energy reserves of the capercaillie <i>Tetrao urogallus</i> in Finland
S. Saarela, U. Petäjä-Repo and R. Hissa	353 Monoamines, thyroid hormones and energy reserves in developing capercaillie chicks (<i>Tetrao urogallus</i> : Tetraonidae)
L. Ambid, I. Castan, Cl. Atgié and M. Nibbelink	361 Food intake and peripheral adrenergic activity in a hibernating rodent, the garden dormouse
Charles R. Blem and Leann B. Blem	367 Lipid reserves of the brown water snake <i>Nerodia taxispilota</i>
Motoyuki Sumida, Yuichi Yamada, Yukio Tanaka, Junji Shimabukuro, Morio Ohnishi, Hajime Mori and Fujiyoshi Matsubara	373 Changes in urea in the haemolymph of the silkworm, <i>Bombyx mori</i> in the fourth and the fifth larval instars and effect of starvation in the fifth instar on the level of urea in the pharate adults
Yibo Cui and Jiankang Liu	381 Comparison of energy budget among six teleosts—III. Growth rate and energy budget
Atsushi Chiba, Masamitsu Hamaguchi, Masaaki Kosaka, Toshiharu Asai, Tatsuya Tokuno and Shiko Chichibu	385 <i>In vivo</i> ^{31}P -NMR analysis of the electric anesthetized loach, <i>Cobitis biswae</i>
Andrea Sparti	391 Comparative temperature regulation of African and European shrews
P. F. M. Teunis, F. Bretschneider and R. C. Peters	399 Synaptic latency in denervated electroreceptor organs
P. F. M. Teunis, F. Bretschneider and R. C. Peters	405 Convergence ratio and transduction in catfish electroreceptive organs
T. Pages, J. F. Fuster and L. Palacios	411 Some mechanical characteristics of the respiratory system of the fresh-water turtle <i>Mauremys caspica</i>
N. Hara, M. Ichinose, M. Sawada and T. Maeno	417 Extracellular ATP activates Ca^{2+} -dependent K^+ conductance via Ca^{2+} influx in mouse macrophages
J. Hoffman, U. Katz and U. Eylath	423 Urea accumulation in response to water restriction in burrowing toads (<i>Bufo viridis</i>)
Jan M. Bakke and Erik Figenschou	427 Volatile compounds from the red deer (<i>Cervus elaphus</i>). Substances secreted via the urine
Masamitsu Hamaguchi	433 The study of energy metabolism in denervated skeletal muscle with ^{31}P -NMR
	439 Book Reviews

Vol. 97A, No. 4

Mini Review

H. Römer and W. J. Bailey

443 Insect hearing in the field

General Papers

R. W. Gauldie and D. G. A. Nelson

449 Interactions between crystal ultrastructure and microincrement layers in fish otoliths

**R. W. Gauldie, N. M. Davies, G. Coote
and I. Vickridge**

461 The relationship between organic material and check rings in fish otoliths

R. W. Gauldie

475 A measure of metabolism in fish otoliths

A. Garateix, J. L. Hernández, R. Más, L. Romero and M. A. Chávez	481	Effects of intra and extracellularly applied <i>Condylactis gigantea</i> phospholipase A on ionic currents of isolated molluscan neurons
S. S. Awad and J. D. Welty	487	Comparisons of hemodynamics throughout the life span of the Bio 14.6 cardiomyopathic with the F ₁ B normal hamster
Bernhard Surholt, Heinrich Greive, Thomas Baal and Andreas Bertsch	493	Non-shivering thermogenesis in asynchronous flight muscles of bumblebees? Comparative studies on males of <i>Bombus terrestris</i> , <i>Xylocopa sulcataipes</i> and <i>Acherontia atropos</i>
Carmine A. Lanciani, James T. Giesel and John F. Anderson	501	Seasonal change in metabolic rate of <i>Drosophila simulans</i>
Gordon R. Ultsch and Jeremy S. Wasser	505	Plasma ion balance of North American freshwater turtles during prolonged submergence in normoxic water
Michiyori Kobayashi, Toru Nezu and Yuko Tanaka	513	Hypoxic induction of hemoglobin synthesis in <i>Daphnia magna</i>
M. O. Nielsen, K. Jakobsen and J. N. Jørgensen	519	Changes in mammary blood flow during the lactation period in goats measured by the ultrasound Doppler principle
Brad R. LeaMaster, James A. Brock, Roger S. Fujioka and Robert M. Nakamura	525	Hematologic and blood chemistry values for <i>Sarotherodon melanotheron</i> and a red hybrid tilapia in freshwater and seawater
Sung Ik Yang, Mitsuhiro Furuse, Nobuhiro Sugishita and Jun-ichi Okumura	531	Effect of phenylalanine on pancreatic amylase secretion in chicks (<i>Gallus domesticus</i>)
Yukio Okada, Takenori Miyamoto and Toshihide Sato	535	Aldosterone increases gustatory neural response to NaCl in frog
Andrew J. Peacock, Cheryl Pickett, Ken Morris and John T. Reeves	537	Spontaneous hypoxaemia and right ventricular hypertrophy in fast growing broiler chickens reared at sea level
B. Simi, M. H. Mayet, B. Sempore and R. J. Favier	543	Large variations in skeletal muscle carnitine level fail to modify energy metabolism in exercising rats
Yibo Cui and Jiankang Liu	551	Comparison of energy budget among six teleosts—IV. Individual differences in growth and energy budget
Tamar Benshalom-Shimony and Jacob S. Ishay	555	Electric capacitance and current of the Oriental hornet silk cocoon cap
Ching-Fong Chang and Mei-Ru Chen	565	Fluctuation in sex steroids and sex steroid-binding protein during the development and annual cycle of the male common carp, <i>Cyprinus carpio</i>
Lawrence E. Licht and James P. Bogart	569	Comparative rates of oxygen consumption and water loss in diploid and polyploid salamanders (genus <i>Ambystoma</i>)
R. W. Rose, R. Swain and S. L. Bryant	573	Body temperature: rhythm and regulation in the Tasmanian bettong (<i>Bettongia gaimardi</i>) (Marsupialia: Potoroidae)
Jørgen Johansen and Anna L. Kleinhaus	577	Ionic conductances in two types of sensory neurons in the leech, <i>Macrobdella decora</i>
G. Theophilidis and V. K. Dimitriadis	583	The structure and innervation of the metathoracic flexor tibiae muscle of two species of Orthoptera (Insecta)
V. Peinado, G. Viscor and J. Palomeque	595	Hematology and blood chemistry in captive Dorcas gazelles and blackbucks
Arinobu Ebara, Hatsumi Akiyama, Hiroshi Yamagishi and Hisashi Ohshima	601	Propagation of impulse in the heart of the beetle <i>Allomyrina dichotomus</i>

**Øivind Andersen, Charles Kimwele,
Arnfinn Aulie and Titus Kanui**

**J. A. Alonso, J. C. Alonso,
R. Muñoz-Pulido, M. A. Naveso,
M. Abelenda, V. Huecas and M. L. Puerta**

**W. H. Gingerich, R. A. Pityer and
J. J. Rach**

**607 Effects of recombinant human growth hormone in juvenile
Nile crocodiles (*Crocodylus niloticus*)**

**611 Hematology and blood chemistry of free-living young Great
Bustards (*Otis tarda*)**

**615 Whole body and tissue blood volumes of two strains of
rainbow trout (*Oncorhynchus mykiss*)**

621 Book Reviews